Geotechnical Testing Journal
Table of Contents, Volume 9
1986

No. 1, March

Permeability Testing in the Triaxial Cell—GREGORY W. CARPENTER AND RICHARD W. STEPHENSON 3
Experimental Study of Rheological Properties of a Sand Using a Special Triaxial Apparatus—DIDIER BOUVARD AND PIERRE STUTZ 10
Development of an Erosion Test for Soil Cement—JAMES M. OSWELL AND RAMESH C. JOSHI 19
Swelling Pressure of Clays—ASURI SRIDHARAN, A. SREEPADA RAO, AND PUVVADI V. SIVAPULLAIAH 24
The Application of Multivariate Statistics and Saturation Extract Data to Identify Dispersive Clay Soils—DOUGLAS CRAFT 34
Technical Note: Estimating Liquefaction Potential of Sands Using the Flat Plate Dilatometer—PETER K. ROBERTSON AND RICHARD G. CAMPANELLA 38
Discussion of "Evaluation of Soil Suction Components" by T. B. Edil and S. E. Motan—B. G. RICHARDS, B. G. EMERSON, AND P. PETER 41
Closure to Discussion by B. G. Richards, B. G. Emerson, and P. Peter—T. B. EDIL AND S. E. MOTAN 44
Book Review on the Handbook of Physical Properties of Rocks by R. S. Carmichael—HERBERT F. WANG 46
Testing Forum 47

No. 2, June

Determination of Ice Forces with Centrifuge Models—HERBERT F. CLOUGH, PHILIP L. KURST, AND TED S. VINSON 49
Effect of Boundary Conditions Upon Centrifuge Experiments Using Ground Motion Simulation—ROBERT V. WHITMAN AND PHILIP C. LAMBE 61
A New Boundary Stress Transducer for Small Soil Models in Centrifuge—PUI LOI R. PANG 72
Characteristic Threshold and Infrared Vibrothermography of Sand—MIN PHONG LUONG 80
A New Technique to Evaluate Erosivity of Cohesive Material—KAROL ROHAN, GUY LEFEBVRE, SERGE DOUVILLE, AND JEAN-PIERRE MILETTE 87
Suggested Method: Suggested Method for Performing the Flat Dilatometer Test—ASTM COMMITTEE D18.02 93
Technical Note: Factors Affecting the Performance of a Pneumatic Earth Pressure Cell—GUY Y. FELIO AND GUNTHER E. BAUER 102
Technical Note: New Equipment and Techniques for Use with the Cambridge Self-Boring Pressuremeter—JOHN L. DAVIDSON AND DAVID G. BLOOMQUIST 107
Testing Forum 113

No. 3, September

Effect of Cementation on the Cone Penetration Resistance of Sand: A Model Study—NADER S. RAD AND MEHMET T. TUMAY 117
Triaxial Equipment for Permeability Testing with Hazardous and Toxic Permeants—JEFFREY C. EVANS AND HSAI-YANG FANG 126
Procedure for a Rod Shear Test—GUY Y. FELIO AND JEAN-LOUIS BRIAUD 133
Technical Note: Testing Using a Large-Scale Cyclic Simple Shear Device—MOHAMED I. AMER, M. SHERIF AGGOUR, AND WILLIAM KOVACS 140
Technical Note: Significance of Specimen Preparation Upon Soil Plasticity—J. CLYDE ARMSTRONG AND THOMAS M. PETRY 147
Technical Note: Preparation of Specimens of Noncohesive Material for Mercury Intrusion Porosimetry—C. HSEIN JUANG AND ROBERT D. HOLTZ II 154
Technical Note: Liquid Limit of Montmorillonite Soils—A. SRIDHARAN, SUDHAKAR M. RAO, AND N. S. MURTHY 156
Testing Forum 160

No. 4, December

Editorial—50 Years Past and the Future—VINCENT P. DRNEVICH 167
Development of an Index to Quantify Rock Texture for Qualitative Assessment of Intact Rock Properties—DOMINIC F. HOWARTH AND JEFFREY C. ROWLANDS 169

Influence of Borehole Stabilization Techniques on Standard Penetration Test Results—GARY C. WHITED AND TUNCER B. EDIL 180
Dynamically Laded Pile in Overconsolidated Clay—GORDON L. MUSTER, II AND MICHAEL W. O'NEILL 189
A Rapid Method to Identify Clay Type in Soils By the Free-Swell Technique—ASAVI SRIDHARAN, SUDHAKAR M. RAO, AND N. SALYANAVAYANA MURTHY 198
A New Apparatus for Investigating the Stress-Strain Characteristics of Sands—A. M. ALARCON, J. L. CHAMEAU, AND G. A. LEONARDS 204
Cyclic Simple Shear Testing of Granular Materials—PHILIP SHAW AND STEPHENSON F. BROWN 213
Discussion of "Repeated Load Triaxial Testing of Frozen and Thawed Soils" by D. M. Cole, G. Durrell, and E. Chamberlain—H. YOUSSEF 221
Testing Forum 226

Geotechnical Testing Journal
Index to Volume 9
1986

Number	Month of Issue	Pages
1	March	1–48
2	June	49–116
3	September	117–166
4	December	167–242

A

Alarcon, A., and Chameau, J. L., and Leonards, G. A.: A new apparatus for investigating the stress-strain characteristics of sands, Dec., 204

Aggour, M. S.: *see* Amer, M. I., Aggour, M. S., and Kovacs, W. D.

Amer, M. I., Aggour, M. S., and Kovacs, W. D.: Testing using a large-scale cyclic simple shear device, Sept., 140

Armstrong, J. C. and Petry, T. M.: Significance of specimen preparation upon soil plasticity, Sept., 147

ASTM Subcommittee D18.02: Suggested method for performing the flat dilatometer test, June, 93

Atterberg limits: Significance of specimen preparation upon soil plasticity (Armstrong and Petry), Sept., 147

B

Bauer, G. E.: *see* Felio, G. Y. and Bauer, G. E.

Bloomquist, D. G.: *see* Davidson, J. L. and Bloomquist, D. G.

Book Review: Handbook of Physical Properties of Rocks by R. S. Carmichael (Wang), March, 46

Borehole stabilization: Influence of borehole stabilization techniques on standard penetration test results (Whited and Edil), Dec., 180

Bouvard, D. and Stutz, P.: Experimental study of rheological properties of a sand using a special triaxial apparatus, March, 10

Briaud, J.-L.: *see* Felio, G. Y. and Briaud, J.-L.

Brown, S. F.: *see* Shaw, P. and Brown, S. F.

Buck, W.: Report on the International Symposium on Kurst Water Resources, June, 113

C

Campanella, R. G.: *see* Robertson, P. K. and Companella, R. G.

Calibrations: Factors affecting the performance of a pneumatic earth pressure cell (Felio and Bauer), June, 102

Capillary pressures: Discussion of "Evaluation of Soil Suction Components" by T. B. Edil and S. E. Motan (Richards, Emerson, and Peter), March, 41

Carpenter, G. W. and Stephenson, R. W.: Permeability testing in the triaxial cell, March, 3

Centrifuges

Determination of ice forces with centrifuge models (Clough, Kurst, and Vinson), June, 49

Effect of boundary conditions upon centrifuge experiments using ground motion simulation (Whitman and Lambe), June, 61

A new boundary stress transducer for small soil models in the centrifuge (Pang), June, 72

Chameau, J. L.: *see* Alarcon, A., Chameau, J. L., and Leonards, G. A.

Chemical analysis: The application of multivariate statistics and saturation extract data to identify dispersive clay soils (Craft), March, 34

Clays

The application of multivariate statistics and saturation extract data to identify dispersive clay soils (Craft), March, 34

Discussion of "Evaluation of Soil Suction Components" by T. B. Edil and S. E. Motan (Richards, Emerson, and Peter), March, 41

A new technique to evaluate erosivity of cohesive material (Rohan, Lefebvre, Douville, and Milette), June, 87

A rapid method to identify clay type in soils by the free-swell technique (Sridharan, Rao, and Murthy), Dec., 198

Swelling pressure of clays (Sridharan, Rao, and Sivapullaiah), March, 24

Clough, H. F., Kurst, P. L., and Vinson, T. S.: Determination of ice forces with centrifuge models, June, 49

Compaction

Characteristic threshold and infrared vibrothermography of sand (Pang), June, 80

Swelling pressure of clays (Sridharan, Rao, and Sivapullaiah), March, 24

Compressive strength: Development of an erosion test for soil cement (Oswell and Joshi), March, 19

Cone penetrometer: Effect of cementation on the cone penetration resistance of sand: a model study (Rad and Tumay), Sept., 117

Crack propagation: Development of an index to quantify rock texture for qualitative assessment of intact rock properties (Howarth and Rowlands), Dec., 169

Craft, D.: The application of multivariate statistics and saturation extract data to identify dispersive clay soils, March, 34

D

Damping: Testing using a large-scale cyclic simple shear device (Amer, Aggour, and Kovacs), Sept., 140

Davidson, J. L. and Bloomquist, D. G.: New equipment and techniques for use with the Cambridge self-boring pressuremeter (Davidson and Bloomquist), June, 107

Dilatancy: Characteristic threshold and infrared vibrothermography of sand (Luong), June, 80

Dilatometer tests: Suggested method for performing the flat dilatometer test (ASTM Subcommittee 18.02), June, 93

Direct shear tests: Cyclic simple shear testing of granular materials (Shaw and Brown), Dec., 213

Douville, S.: *see* Rohan, K., Lefebvre, G., Douville, S., and Millette, J.-P.

Drill holes: Influence of borehole stabilization techniques on standard penetration test results (Whited and Edil), Dec., 180

Drnevich, V. P.

Editorial, Dec., 167

Editorial, March, 2

50th Anniversary Celebration of Committee D-18, Dec., 226

E

Earth pressure cell: Factors affecting the performance of a pneumatic earth pressure cell (Felio and Bauer), June, 102

Earthquakes: Effect of boundary conditions upon centrifuge experiments using ground Motan simulation (Whitman and Lambe), June, 61

Edil, T. B.: *see* Whited, G. C. and Edil, T. B.

Emerson, W. W.: *see* Richards, B. G., Emerson, W. W., and Peter, P.

Erosion: A new technique to evaluate erosivity of cohesive material (Rohan, Lefebvre, Douville, and Milette), June, 87

Erosion tests: Development of an erosion test for soil cement (Oswell and Joshi), March, 19

Evans, J. C. and Fang, H.-Y.: Triaxial equipment for permeability testing with hazardous and toxic permeants, Sept., 126

F

Fang, H.-Y.: *see* Evans, J. C. and Fang, H.-Y.

Felio, G. Y. and Bauer, G. E.: Factors affecting the performance of a pneumatic earth pressure cell, June, 102

Felio, G. Y. and Briaud, J.-L.: Procedure for rod shear test, Sept., 133

Flat plate dilatometer: Estimating liquefaction potential of sands using the flat plate dilatometer (Robertson and Campanella), March, 38
Frozen soils: Discussion of "Repeated Load Triaxial Testing of Frozen and Thawed Soils" by D. M. Cole, G. Durrell, and E. Chamberlain (Youssef) Dec., 221

H

Hazardous wastes: Triaxial equipment for permeability testing with hazardous and toxic permeants (Evans and Fang), Sept., 126
Holtz, R. D., II: *see* Juang, C. H. and Holtz, R. D., II
Howarth, D. F. and Rowlands, J. C.: Development of an index to quantify rock texture for qualitative assessment of intact rock properties, Dec., 169
Hydraulic conductivity: Triaxial equipment for permeability testing with hazardous and toxic permeants (Evans and Fang), Sept., 126

I

Ice: Determination of ice forces with centrifuge models (Clough, Kurst, and Vinson), June, 49
In-situ testing
Estimating liquefaction potential of sands using the flat plate dilatometer (Robertson and Campanella), March, 38
A new equipment and techniques for use with the Cambridge self-boring pressuremeter (Davidson and Bloomquist), June, 107

J

Joshi, R. C.: *see* Oswell, J. M. and Joshi, R. C.
Juang, C. H. and Holtz, R. D., II: Preparation of specimens of noncohesive material for mercury intrusion porosimetry, Sept., 154

K-L

Kovacs, W. D.: *see* Amer, M. I., Aggour, M. S., and Kovacs, W. D.
Kurst, P. L.: *see* Clough, H. F., Kurst, P. L., and Vinson, T. S.
Laboratory testing
Testing using a large-scale cyclic simple shear device (Amer, Aggour, and Kovacs), Sept., 140
Triaxial equipment for permeability testing with hazardous and toxic permeants (Evans and Fang), Sept., 140
Lambe, P. C.: *see* Whitman, R. V. and Lambe, P. C.
Lefebvre, G.: *see* Rohan, K., Lefebvre, G., Douville, S., and Millete, J.-P.
Leonards, G. A.: *see* Alarcon, A., Chameau, J. L., and Leonards, G. A.
Liquid limit: Significance of specimen preparation upon soil plasticity (Armstrong and Petry), Sept., 147
Liquefaction: Estimating liquefaction potential of sands using the flat plate dilatometer (Robertson and Campanella), March, 38
Luong, M. P.: Characteristic threshold and infrared vibrothermography of sand, June, 80

M

Mercury intrusion porosimetry: Preparation of specimens of noncohesive material for mercury intrusion porosimetry (Juang and Holtz), Sept., 154
Milette, J.-P.: *see* Rohan, K., Lefebvre, G., Douville, S., and Milette, J.-P.
Model tests: Effect of boundary conditions upon centrifuge experiments using ground motion simulation (Whitman and Lambe), June, 61
Montmorillonite: Liquid limit of montmorillonite soils (Sridharan, Rao, and Murthy), Sept., 156
Multivariate statistics: The application of multivariate statistics and saturation extract data to identify dispersive clay soils (Craft), March, 34
Murthy, N. S.: *see* Sridharan, A., Rao, S. M., and Murthy, N. S.
Muster, G. L., II and O'Neill, M. W.: Dynamically loaded pile overconsolidated clay, Dec., 189

N-O

Noncohesive material: Preparation of specimens of noncohesive material for mercury intrusion porosimetry (Juang and Holtz), Sept., 154
O'Neill, M. W.: *see* Muster, G. L., II and, O'Neill, M. W.
Oswell, J. M. and Joshi, R. C.: Development of an erosion test for soil cement, March, 19
Overconsolidated clays: Dynamically loaded pile in overconsolidated clay (Muster and O'Neill), Dec., 189

P

Pang, P. L. R.: A boundary stress transducer for small soil models in the centrifuge, June, 72
Penetration rig: New equipment and techniques for use with the Cambridge self-boring pressuremeter (Davidson and Bloomquist), June, 107
Penetration tests: Suggested method for performing the flat dilatometer test (ASTM Subcommittee 18.02), June, 93
Permeability: Permeability testing in the triaxial cell (Carpenter and Stephenson), March, 3
Peter, P.: *see* Richards, B. G., Emerson, W. W., and Peter, P.
Petry, T. M.: *see* Armstrong, J. C. and Petry, T. M.
Pile driving: Dynamically loaded pile in overconsolidated clay (Muster and O'Neill), Dec., 189
Pile friction: Procedure for a rod shear test (Felio and Briaud), Sept., 133
Piles
Determination of ice forces with centrifuge models (Clough, Kurst, and Vinson), June, 49
Dynamically loaded pile in overconsolidated clay (Muster and O'Neill), Dec., 189
Plastic limit: Significance of specimen preparation upon soil plasticity (Armstrong and Petry), Sept., 147
Pore size distribution: Preparation of specimens of noncohesive material for mercury intrusion porosimetry (Juang and Holtz), Sept., 154
Pressure cells: A new boundary stress transducer for small soil models in the centrifuge (Pang), June, 72
Pressures: Suggested method for performing the flat dilatometer test (ASTM Subcommittee 18.02), June, 93

R

Rad, N. S. and Tumay, M. T.: Effect of cementation on the cone penetration resistance of sand: a model study, Sept., 117
Rao, A. R.
see Sridharan, A., Rao, S. M., and Murthy, N. S.
see Sridharan, A., Rao, A. R., and Sivapullaiah, P. V.
Relative density: Effect of cementation on the cone penetration resistance of sand: a model study (Rad and Tumay), Sept., 117
Richards, B. G., Emerson, W. W., and Peter, P.: Discussion of "Evaluation of Soil Suction Components" by T. B. Edil and S. E. Motan, March, 41
Robertson, P. K. and Campanella, R. G.: Estimating liquefaction potential of sands using the flat plate dilatometer, March, 38
Rock texture: Development of an index to quantify rock texture for qualitative assessment of intact rock properties (Howarth and Rowlands), Dec., 169
Rocks: Development of an index to quantify rock texture for qualitative assessment of intact rock properties (Howarth and Rowlands), 169
Rod shear test: Procedure for a rod shear test (Felio and Briaud), Sept., 133
Rohan, K., Lefebvre, G., Douville, S., and Milette, J.-P.: A new technique to evaluate erosivity of cohesive material, June, 87
Rowlands, J. C.: *see* Howarth, D. F. and Rowlands, J. C.

S

Sands
Effect of cementation on the cone penetration resistance of sand: a model study (Rad and Tumay), Sept., 117
Estimating liquefaction potential of sands using the flat plate dilatometer (Robertson and Campanella), March, 38
Experimental study of rheological properties of a sand using a special triaxial apparatus (Bouvard and Stutz), March, 10
A new apparatus for investigating the stress-strain characteristics of sands (Alarcon, Chameau, and Leonards), Dec., 204
Testing using a large-scale cyclic simple shear device (Amer, Aggour, and Kovacs), Sept., 140
Schmertmann, J. H.: Suggested method for performing the flat dilatometer test (ASTM Subcommittee D18.02), June, 93
Shaw, P. and Brown, S. F.: Cyclic simple

shear testing of granular materials, Dec., 213
Shear apparatus: Cyclic simple shear testing of granular materials (Shaw and Brown), Dec., 213
Shear stress: Cyclic simple shear testing at granular materials (Shaw and Brown), Dec., 213
Shear tests: Procedure for a rod shear test (Felio and Briaud), Sept., 133
Shockley, W. G.
Comments from the chairman of Committee D-18, Dec., 226
Update of the History of ASTM Committee D-18, Dec., 228
Sivapullaiah, P. V.: *see* Sridharan, A., Rao, A. S., and Sivapullaiah, P. V.
Soil cement: Development of an erosion test for soil cement (Oswell and Joshi), March, 19
Soil mechanics: A new boundary stress transducer for small soil models in the centrifuge (Pang), June, 72
Soil tests: Permeability testing in the triaxial cell (Carpenter and Stephenson), March, 3
Soils
The application of multivariate statistics and saturation extract data to identify dispersive clay soils (Craft), March, 34
Discussion of "Evaluation of Soil Suction Components" by T. B. Edil and S. E. Motan (Richards, Emerson, and Peter), March, 41
Liquid limit of montmorillonite soils (Sridharan, Rao, and Murthy), Sept., 156
A rapid method to identify clay type in soils by the free-swell technique (Sridharan, Rao, and Murthy), Dec., 198
Sridharan, A., Rao, S. M., and Murthy, N. S.
Liquid limit of montmorillonite soil, Sept., 156
A rapid method to identify clay type in soils by the free-swell technique, Dec., 198
Sridharan, A., Rao, A. S., and Sivapullaiah, P. V.: Swelling pressure of clays, March, 24
Stephenson, R. W.: *see* Carpenter, G. W. and Stephenson, R. W.
Standard penetration test: Influence of borehole stabilization techniques on standard penetration test results (Whited and Edil), Dec., 180
Stress: Factors affecting the performance of a pneumatic earth pressure cell (Felio and Bauer), June, 102
Stress-strain curves: Experimental study of rheological properties of a sand using a special triaxial apparatus (Bouvard and Stutz), March, 10
Stutz, P.: *see* Bouvard, D. and Stutz, P.
Swelling: Swelling pressure of clays (Sridharan, Rao, and Sivapullaiah), March, 24
Swelling index: A rapid method to identify clay type in soils by the free-swell technique (Sridharan, Rao, and Murthy), Dec., 198

T

Test procedures: A new technique to evaluate erosivity of cohesive material (Rohan, Lefebvre, Douville, nd Millette), June, 87
Thawed soils: Discussion of "Repeated Load Triaxial Testing of Frozen and Thawed Soils" by D. M. Cole, G. Durrell, and E. Chamberlain (Youssef), Dec., 221
Torsion shear tests: A rapid apparatus for investigating the stress-strain characteristics of sands (Alarcon, Chameau, Leonards), Dec., 204
Torsional shear apparatus: A new apparatus for investigating the stress-strain characteristics of sands (Alarcon, Chameau, and Leonards), Dec., 204
Triaxial tests
Characteristic threshold and infrared vibrothermography of sand (Luong), June, 80
Discussion of "Repeated Load Triaxial Testing of Frozen and Thawed Soils" by D. M. Cole, G. Durrell, and E. Chamberlain (Youssef), Dec. 221
Experimental study of rheological properties of a sand using a special triaxial apparatus (Bouvard and Stutz), March, 10
Permeability testing in the triaxial cell (Carpenter and Stephenson), March, 3
Tumay, M. T.: *see* Rad, N. S. and Tumay, M. T.

V

Vinson, T. S.: *see* Clough, H. F., Kurst, P. L., and Vinson, T. S.

W-Z

Wang, H. F.: Review of Handbook of Physical Properties of Rocks by R. S. Carmichael, March, 46
Whited, G. C. and Edil, T. B.: Influence of borehole stabilization techniques on standard penetration test results (Whited and Edil), Dec., 180
Whitman, R. V. and Lambe, P. C.: Effect of boundary conditions upon centrifuge experiments using ground motion simulation, June, 61
Youssef, H.: Discussion of "Repeated Load Triaxial Testing of Frozen and Thawed Soils" by D. M. Cole, G. Durrell, and E. Chamberlain, Dec., 221